S/733/60/000/003-4/009/012
I046/I246

AUTHOR: Yakovlev, B.A.

TITLE: Tectonic phenomena and solar activity .

SOURCE: Lvov. Universitet. Astronomicheskiy sbornik, no. 3-4, 1960, 152-157

TEXT: Comparative analysis of the macroseismic activity, of the annual deviations of
the pole from its average position and of the annual average Wolf numbers between 1932
and 1948 shows that the tectonic activity of the earth (earthquakes, volcanism)
increases with the enhancement of the solar activity. There are 4 figures and 1 table.

ASSOCIATION: Institut prikladnoy geofiziki AN SSSR (Institute of Applied Geo-
                physics,AS USSR)

Card 1/1

L 12756-63   EWT(1)/BDS   AFFTC/ASD/ESD-3   P1-4/Po-4   RB
S/169/63/000/004/015/017

AUTHOR: Yakovlev, B. A.

TITLE: The connection between magnetic storms and atmospheric
            circulation

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 4, 1963, abstract 4B284
            (Tr. 1-y nauchn. konferentsii po obshch. tsirkulyatsii atmos-
            fery (1960). M. Gidrometeoizdat, 1962, 142-148)

TEXT: An investigation of data on severe and very severe magnetic storms
lasting not more than two days which were recorded by the Murmansk Department
of the Scientific Research Institute of Terrestrial Magnetism and Radio Waves,
AN USSR from 1 January through 31 July 1959 showed that there is a tendency for
magnetic storms to reappear at approximately equal intervals of time. Inter-
vals of 14 ± 1 days; 26 ± 1 days; 29 ± 1 days; and 56 ± 1 days. Cyclo-
genesis developed more actively and the development of low cyclones into high
cyclones was accelerated from the second day after the beginning of the period
of a magnetic storm up to the second day after its end. The tendency to

Card 1/2

L 12756-63

The connection between magnetic storms and...

S/169/63/000/004/015/017

O

increasing cyclonic activity during magnetic storms in the cold half of the
year increases from Iceland toward the Barents Sea. In the warm season of
the year there is a tendency toward an increase in temperature in the same
region during magnetic storms. An analysis of the development of processes
during two magnetic storms (a severe one from 16 through 17 January 1958 and
a very severe one from 24 April through 1 May 1959) is presented.

/Abstracter's note: Complete translation./

Card 2/2

YAKOVLEV, Boris Aleksandrovich, kand. geograf. nauk; KAS'YANOV, A.P.,
red.[deceased]; NOVITSKIY, V.P.; kand.geogr. nauk,red.;BARANOV,I.A.;
tekhn,,red.
[Climate of Murmansk Province] Klimat Murmanskoi oblasti.
Murmansk, Murmanskoe knizhnoe izd-vo, 1961. 178 p.
                                              (MIRA 15:2)
        (Murmansk Province--Climate)

YAKOVLEV, B. A.

More accurate method of reducing the mean air temperature of a
station to the basic one on the basis of regular variations over
many years. Trudy GGO no.162:64-67 '64.   (MIRA 17:7)

YAKOVLEV, B.A.

Characteristics of the distribution of lead-zinc mineralization
in the Gornyy Altai. Sov. geol. 7 no.9:77-94 S '64.

(MIRA 17:10)

1. Aerogeologicheskiy trest.

L 24673-65   EWT(1)/FCC   AEDC(a)   GW

ACCESSION NR: AT4049312   S/2646/64/000/136/0081/0088

AUTHOR: Yakovlev, B.A.

TITLE: Summer fogs over the Barents Sea

SOURCE: Moscow. Tsentral'ny*y institut prognozov. Trudy*, no. 136, 1964. Voprosy*
obrazovaniya i prognoza oblakov i tumanov (Problems in the formation and forecasting of
clouds and fogs), 81-88

TOPIC TAGS: Barents Sea, advection fog, sea fog, steam fog, fog forecasting, surface
boundary layer

ABSTRACT: The incidence of fogs over the Barents Sea during the summer half of the
year was investigated, and data are presented on the water surface temperature and the
temperature and humidity of the surface boundary layer. Having rejected other Soviet fog
classifications as being inadequate, the author undertook to find qualitative statistical
relationships between the most important parameters that ensure the presence or absence
of fogs in order to use these relationships to forecast phenomena on the basis of meteorol-
ogical information. Two types of summer advection fogs were distinguished over the
Barents Sea: sea fog and steam fog. The conditions for the formation, and forecasting

Card   1/2

L 24673-65
ACCESSION NR: AT4049312

of steam fog and of sea fog by advection of warm air from the continent and from the
Norwegian Sea are given. As a result of the investigation, starting parameters, e.g., the
difference between air temperature at the 850 mb level and the water surface temperature
near the ice edge, and the difference between the latter and the water surface temperature
in one of the southern regions of the Barents Sea, were selected for estimating the intensity
of initial inversion and fog forecasting. The reliability of forecasting the presence of fog
was 80% and of forecasting the absence, 71-76%. "The author thanks N. V. Petrenko, chief
of the Otdel aviatsionnoy meteorologii Tsentral'nogo instituta prognozov (Department of
Aviation Meteorology, Central Institute of Forecasts) for his guidance and help." Orig.
art. has: 7 figures.

ASSOCIATION: Tsentral'ny*y institut prognozov, Moscow (Central Institute of Forecasts)

SUBMITTED: 00

ENCL: 00

SUB CODE: ES

NO REF SOV: 002

OTHER: 000

Card 2/2

YAKOVLEV, B.A.

Experimental determination of the thermal properties of rocks
by the double alpha method. Trudy MINKHiGP no.50:260-265 '64
(MIRA 18:2)

·L 56496-65   EWT(1)   GW

ACCESSION NR: AP5017795

UR/0286/65/000/011/0011/0011
622.242.3

AUTHOR: Agaguseynov, Yu. A.-ogly; Zhornitskiy, I. D.; Kapustin, K. Ya.;
Kuliyev, I. P.-ogly; Yakovlev, B. A.

TITLE: An installation for drilling oil wells at sea. Class 5, No. 171348

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 11, 1965, 11

TOPIC TAGS: oil well drilling, floating oil well, seagoing oil well

ABSTRACT: This Author's Certificate introduces: 1. An installation for drilling
oil wells at sea. The unit consists of a ship, a shaft for lowering a water insu-
lating column and a drill fastened by anchors. The installation is designed for
automatically orienting the ship during swells and for preventing deflection from
the well axis. The hull of the ship is equipped with a horizontal platform with
the shaft, and a tension device. These units are displaced in the horizontal plane
toward the midship section. 2. A modification of this installation in which maxi-
mum tension is maintained on the anchor chains by making the tension device in the
form of double action hydraulic cylinders.

Card 1/3

L 56496-65

ACCESSION NR: AP5017795

ASSOCIATION: none

SUBMITTED: 09May63   ENCL: 01   SUB CODE: ES

NO REF SOV: 000   OTHER: 000

Card 2/3

L 56496-65

ENCLOSURE: 01   0
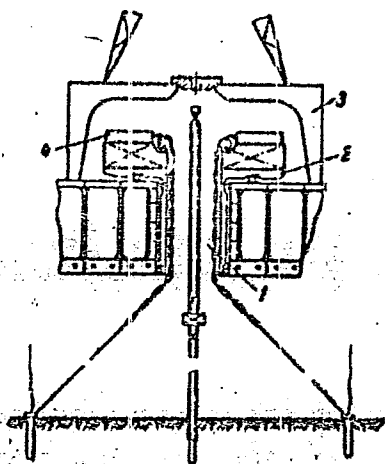
Fig. 1.   1--shaft; 2--rotating platform;
3--gantry which carries the derrick;
4--tension device

Card 3/3

SOKOLOV, A.Ye.; YAKOVLEV, B.A.

Raising the efficiency of production. Stroi. mat. no.11:11 N '65.
(MIRA 18:12)

MAL'TSEV, B.A., kand.tekhn.nauk; YAKOVLEV, B.F., inzh.

Determining the speed of ships with the help of marine radar sta-
tions. Sudostroenie 28 no.2:49-53 F '62.   (MIRA 15:3)
          (Ship trials) (Radar in navigation)

YAKOVLEV, B.G.; ISUPOVA, L.S.

Interaction between sulfur-containing radioprotectors and tissue
proteins. Radiobiologiia 4 no.2:244-247 '64.   (MIRA 18:3)

YAKOVLEV, B.G.

      Genesis of plagiogranites in the Inya magnetite deposit. Trudy
SNIGGIMS no.6:52-55 '61.   (MIRA 15:7)
              (Inya Valley (Altai Mountains)--Granite)

YAKOVLEV, B.

The kinetics of the oxidation of hydrides in the gas phase. III. Oxidation of hydrogen sulfide. B. Yakovlev and P. Shantarovich. *J. Phys. Chem.* (U.S.S.R.) 9, 112-31 (1937).—Like silicane and phosphine, H_2S on combustion with O_2 shows a peninsular region of ignition in p and T from 0.5 to 20 mm. and 220° to 450° with lower and upper limits. Considerably above the upper limit is found a third limit of renewed ignition, corresponding to the third limit found by previous authors. Like the regions for H_2 and CO, the "peninsula" moves toward lower temps. on increasing the concn. of O_2. Outside the explosion region a slow reaction, increasing with pressure, takes place. The boundary of the ignition region is given by log $p_1 = (A/T) + B$ or $p_1 = ae^{-E/RT}$, where $A = 2800$, $E = 10,000$, $B = 5.2$ and $a = 1.5 \times 10^6$. Cf. C. A. 30, 5468. P. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

YAKOVLEV, B. I.

Thermal explosion of nitrous oxide. Ya. B. Zel'-dovich and B. I. Yakovlev. Compt. rend. acad. sci. U. R. S. S. 19, 690(1938)(in English).—At sufficiently high temps. and corresponding rate of heat liberation from the exothermic reaction, decompn. of N_2O becomes explosive, accompanied by a blue flame and a sharp rise in pressure. The following limiting temps. were found in a quartz vessel 2.5 cm. diam. by 18 cm. long.

P. in mm.	T. found	T. calcd.
170	1285°	1255°
330	1195°	1175°
500	1100°	1110°

The calcn. was carried out according to the Frank-Kamenetskii theory (cf. preceding abstr.). G. M. Evans

Synthesis and polymerization of unsaturated silicon-organic compounds. 1. Synthesis of diallyldiethylsilane. B. I. Yakovlev. *Zhur. Obshchel Khim.* (J. Gen. Chem.) 19, 1009-70(1949).—This not heretofore described compd. was synthesized by the reaction 2 $CH_2:CHCH_2MgBr$ + $Et_2SiCl_2 \rightarrow (CH_2:CHCH_2)_2SiEt_2$ + $MgCl_2$ + $MgBr_2$, with a 55-60% yield with respect to Et_2SiCl_2. The latter (10 g.) is added slowly to $CH_2:CHCH_2MgBr$ (from 37 g. dry $CH_2:CHCH_2Br$ in 100 ml. Et_2O and 0.1 g. Mg), and the mixt. refluxed 5 hrs., cooled, and decompd. with a 25% soln. of NH_4Cl with ice; distn. of the dry residue of the ether layer gave 5.5 g. of product, b_{6} 91-2°, d^{20} 0.8076, n_D^{20} 1.4501. The compd. was identified by detn. of the double bonds, of Si, and of the mol. wt. It polymerizes under the action of Bz_2O_2 and other polymerization catalysts. N. Thon

C M   O

Synthesis and polymerization of unsaturated organic silicon compounds. I. Synthesis of diallyldiethylsilane. B. I. Yakovlev. J. Gen. Chem. (U.S.S.R.) 19, No. 10, 125-8(1949)(English translation). See C.A. 44, 1010f. E. J. C.

YAKOVLEV, B.I.; VINOGRADOVA, N.V.

Synthesis and polymerization of unsaturated organosilicon compounds.
II. Synthesis of triallylethylsilane. Zhur. Obshchey Khim. 22, 1464-5
'52.   (MLRA 5:8)
(CA 47 no.13:6340 '53)

AUTHORS: Yakovlev, B. I. and Vinogradova, N. V.   SOV/79-29-2-71/71

TITLE: Letter to the Editor (Pis'mo v redaktsiyu)
              On the Synthesis of Elemental-organic Compounds of the General
              Formula $Me^n [OSiR_3]_n$ (O sinteze elementoorganicheskikh soyedineniy
              obshchey formuly $Me^n[OSiR_3]_n$)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 2, pp 695-696 (USSR)
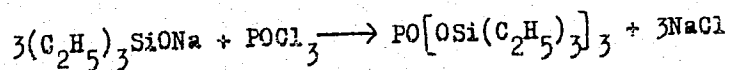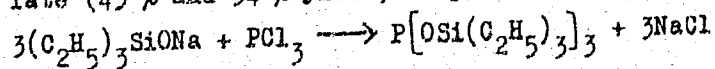
ABSTRACT: The interest for the new elemental-organic compounds, containing also
              atoms of other elements besides the silicon atom, has risen since
              recent times. The authors consider it to be appropriate to publish
              also their own results of syntheses of new element-organic compounds
              having the general formula $Me^n [OSiR_3]_n$, carried out in the years
              from 1949 to 1952 (Ref 1): Tetra [triethylsilyl] titanate was obtain-
              ed in a yield of up to 60 % by re-esterfication of tetraethyl ortho-
              titanate with an excess of triethyl silanol:

              $$Ti(OC_2H_5)_4 + 4(C_2H_5)_3SiOH \rightarrow Ti[OSi(C_2H_5)_3]_4 + 4C_2H_5OH.$$ Tri [triethyl-

              silyl] borate was obtained (yield up to 40 %) by the reaction of
Card 1/2   triethyl silanol with boric acid anhydride in the presence of

SOV/79-29-2-71/71

Letter to the Editor. On the Synthesis of Elemental-organic Compounds of the General

Formula $Me^n[OSiR_3]_n$

$CuSO_4; B_2O_3 + 6(C_2H_5)_3SiOH \longrightarrow 2B[OSi(C_2H_5)_3]_3 + 3H_2O$. The synthesis

of organophosphosilicon compounds $P[OSiR_3]_3$ and $PO[OSiR_3]_3$ was carried

out according to Arbuzov, A. Ye. (Ref 2). Tri [triethyl silyl] phos-
phite and tri [triethyl silyl] phosphate were synthesized by the
action of PCl_3 (or phosphoroxychloride) upon sodium triethyl silano-

late (45 % and 34 % yield, respectively):

$3(C_2H_5)_3SiONa + PCl_3 \longrightarrow P[OSi(C_2H_5)_3]_3 + 3NaCl$

$3(C_2H_5)_3SiONa + POCl_3 \longrightarrow PO[OSi(C_2H_5)_3]_3 + 3NaCl$

There are 2 Soviet references.

Card 2/2

USCOMM-DC-60,689

YAKOVLEV, B.I., kand.sel'skokhozyaystvennykh nauk (g.Gorki, BSSR)

History of one of the oldest drainage systems in Russia. Gidr. i
mel. 12 no.4:51-54 Ap '60.   (MIRA 13:9)
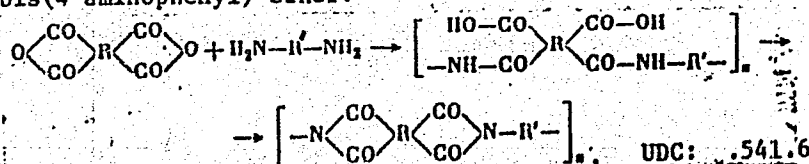   (Gorki region (Mogilev Province)—Drainage)

(A) L 11235-66 EWT(m)/EWP(j)/T/EWA(c)/ETC(m) WW/RM

ACC NR: AP6002214   SOURCE CODE: UR/0080/65/038/012/2728/2734

AUTHOR: Koton, M. M.; Yakovlev, B. I.; Rudakov, A. P. Knyazeva, T. S.; Florinskiy,
F. S.; Bessonov, M. I.; Kuleva, M. M.; Tolparova, G. A.; Layus, L. A.

ORG: Institute of Macromolecular Compounds, AN SSSR (Institut vysokomolekulyarnykh
soyedineniy AN SSSR)

TITLE: Preparation and physicomechanical properties of polypyromellitimide

SOURCE: Zhurnal prikladnoy khimii, v. 38, no. 12, 1965, 2728-2734

TOPIC TAGS: heat resistant plastic, fire resistant material, dielectric material,
polyimide, polypyromellitimide/

ABSTRACT: A study has been made of the preparation and physical and mechanical
properties of a polyimide, viz., polypyromellitimide. Test results showed that
the polymer may find widespread use as a heat resistant and low temperature resistant
material, and is of special interest as a high temperature film dielectric. · A poly-
pyromellitimide film similar to the U.S. H-film was prepared from pyromellitic an-
hydride and bis(4-aminophenyl) ether:

$$O\langle{}^{CO}_{CO}\rangle R\langle{}^{CO}_{CO}\rangle O + H_2N-R'-NH_2 \rightarrow \left[{}^{HO-CO}_{-NH-CO}\rangle R\langle{}^{CO-OH}_{CO-NH-R'-} \right]_n \rightarrow$$

$$\rightarrow \left[-N\langle{}^{CO}_{CO}\rangle R\langle{}^{CO}_{CO}\rangle N-R'- \right]_n ; \quad UDC: .541.6$$

Card 1/2

L 11235-66

ACC NR: AP6002214

/

Polycondensation to the polyamido acid intermediate was carried out at 15C. Poly-Pyromellitimide films were prepared by drying solutions of the polyamido acid on glass substrates at 20—40C followed by heat treatment at 80—400C to produce imidization. Optimum preparative conditions were determined. The films were transparent, gold-brown in color, thermally stable, nonburning at up to 600—700C, unaffected by organic solvents, highly resistant to γ- and UV radiation, low temperature resistant, nonshrinking, resistant to humidity, and readily metalized. In its mechanical properties at high temperatures, the material surpasses all existing polymers. These properties can be further improved by orientation stretching, after which they approach those of glass-reinforced plastics and metals. Orig. art. has: 5 figures and 3 tables.   15   [SM]

SUB CODE: 11/ SUBM DATE: 08Mar65/ ORIG REF: 008/ OTH REF: 011/

ATD PRESS: 4/73

8C/

Card 2/2

IGNATENOK, Filipp Vasil'yevich, kand. tekhn. nauk; TIMOFEYEV, Aleksandr
Filippovich; YAKOVLEV, Boris Ivanovich; LAZARCHIK, K.S., red.;
~~ZAY~KO, ~.~.~; ooknur. red.~~

[Agricultural land improvement; a textbook] Sel'sko-khoziai-
stvennye melioratsii; uchebnoe posobie. Minsk, Gos.izd-vo
sel'khoz. lit-ry BSSR, 1963. 291 p.   (MIRA 16:9)
        (Irrigation) (Drainage) (Erosion)

BELEN'KII, Il'ya Markovich; SHAPIRO, YAkov Moiseyevich; YAKOVLEV, Boris
Mikhaylovich; MOZZHUKHIN, N.A., red.; VYSOTSKAYA, R.S.,red.;
GOLUBKOVA, L.A., tekhn.red.

[Accounting in grain-receiving stations] Bukhgalterskii uchet na
khlebopriemnykh punktakh. Pod red. N.A. Mozzhukhina. Moskva,
Izd-vo tekhn. i ekon. lit-ry po voprosam mukomol'no-krupianoi,
kombikormovoi promyshl. i elevatorno-skladskogo khoz., 1957.
390 p.   (MIRA 11:8)
            (Grain trade--Accounting)

DOLITSKIY, V.A.; YAKOVLEV, B.M.

Using logging data for studying overthrust folds in north-
western Ciscausia. Izv.vys.ucheb.zav.; neft' i gaz no.11:
23-30 '59.   (MIRA 13:4)

1. Moskovskiy institut neftekhimicheskoy i gazovoy promy-
shlennosti im. akademika I.M.Gubkina.
        (Caucasus, Northern--Folds(Geology))

SENCHURO, I.N.; YAKOVLEV, B.M.

Energy calibration of counters with organic scintillators. Vest.
Mosk. un. Ser.3:Fiz., astron. 19 no.1:18-20 Ja-F '64.

(MIRA 17:4)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo
universiteta.

YAKOVLEV, B.M.

USSR/Chemistry – Spectral analysis

Card 1/1   Pub. 43 – 70/97

Authors   : Yakovlev, B. M., and Prkhunova, A. Ya.

Title   : Spectral analysis of slag

Periodical   : Izv. AN SSR. Ser. fiz. 18/2, page 286, Mar-Apr 1954

Abstract   : A method of spectral analysis of slag was developed for the purpose of
                controlling the processes occurring in cupola and electrical furnaces.
                The three standards applied in the analysis of furnace slag are described.
                The method makes it possible to determine the basic components of slag
                within a period of one hour with an accuracy of no less than 5%.

Institution : The V. M. Molotov State Automobile Plant

Submitted   : .....

YAKOVLEV B.M.
KRESTEL MAIN, N. YA.

25(6)   PHASE I BOOK EXPLOITATION   SOV/2555

Nauchno-tekhnicheskoye obshchestvo priborostroitel'noy promyshlen-
nosti. Ukrainskoye respublikanskoye pravleniye

Novyye metody kontrolya i defektoskopii v mashinostroyenii i pri-
borostroyenii [doklady Respublikanskoy konferentsii] [New Methods
of Inspection and Flaw Detection in the Machinery and Instrument-
manufacturing Industries [Reports of the Conference Held at Kiyev,
1956]] Kiyev, Gostekhizdat USSR, 1958. 264 p. 4,700 copies printed.

Sponsoring Agency: Akademiya nauk USSR.

Ed.: A. Amelin; Tech. Ed.: P. Patsalyuk; Editorial Board: I.I.
Greben', B.D. Grozin, A.Z. Zhmudskiy, G.N. Savin (Resp. Ed.), I.D.
Paynerman (Dep. Resp. Ed.), and A.A. Shishlovskiy.

PURPOSE: This book is intended for engineers, scientific workers, and
technicians dealing with problems of inspection and flaw detection.

COVERAGE: This is a collection of scientific papers presented at a
conference sponsored by the Academy of Sciences, UkrSSR, and the
Nauchno-tekhnicheskoye obshchestvo priborostroitel'noy promyshlen-
nosti, Ukrainskoye pravleniye (Ukrainian Branch, Scientific and
Technical Society of the Instrument-manufacturing Industry). The
papers deal with modern methods of inspection and flaw detection
used in the machinery- and instrument-manufacturing industries.
The subjects discussed include the use of electron microscopes
in the investigation of metal surfaces; X-ray, gamma-ray, lumines-
cense, magnetic, and ultrasonic methods of flaw detection; use of
radioactive isotopes; X-ray diffraction methods of metal analysis;
and the use of interferometers for measuring length and thickness
and determining the coefficient of linear thermal expansion. No
personalities are mentioned. References follow several of the
papers.

Genkin, V.M., Engineer, Gor'kiy "Krasnoye Sormovo" Plant. X-ray
Diffraction Quantitative Phase Analysis Using Standard X-ray
Photographs   70

Zhmudskiy, A.Z., and L.M. Pakchanin, Candidate of Physical and
Mathematical Sciences, Kiyev State University imeni Shevchenko.
Problems of Physical Strength and Crack Formation in Case-hardened
Parts   75

Yevdokimov, A.V., Engineer, and P.M. Yel'chin, Moscow TsNIITMASh.
Methods and Equipment for Luminescent Flaw Detection   78

Vinnikov, B.M., Engineer, Avtozavod, g. Gor'kiy (Gor'kiy Automo
bile Plant). Experience Gained at the Laboratory for Spectral
Analysis, Gor'kiy Automobile Plant   85

Yeremin, N.I., Candidate of Physical and Mathematical Sciences,
TsNIITMASh. New Developments in the Field of Magnetic-particle
Flaw Detection and Magnetic Metallography   87

Zhigadlo, A.V., Candidate of Technical Sciences, Institut, P/ya

Card 3/9

BYKOVA, T.V.; YAKOVLEV, B.M.

Spectrum analysis of electrolytic baths for acidic electro-
lytic tinning and nickel plating. Fiz.sbor. no.4:510-512
'58.   (MIRA 12:5)

1. Avtomobil'nyy zavod, Gor'kiy.
          (Electrolytes--Spectra)

  Materials of the 10th All-Union Conference on Spectroscopy, 1956, Vol. 2, Atomic
Spectroscopy, Izd-vo L'vovskogo univ., 568 p. Series: Its: Fizicheskiy sbornik, vyp.4(9)
1958.

S/126/60/010/004/004/023
E111/E452

AUTHORS: Apayev, B.A. and Yakovlev, B.M.

TITLE: Use of Magnetic Phase Analysis for Separate
             Determination of Combined and Free Carbon

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol.10, No.4,
             pp.527-533

TEXT: The authors describe the application of the additivity of
saturation magnetization in a heterogeneous system to the
determination of ferrite and cementite in steel.   Fig.1 shows for
some carbon steels the magnetization versus temperature curves
required if the chemical composition of the sample is not known.
These curves refer to annealed types 10, 20, 30, У7(U7), У9 (U9)
and У10 (U10) steels.   The cementite determination required
extrapolation of the ferrite part of the curve and the authors
describe a published (Refs. 2,3) method which gives good agreement
of experimental and calculated points (dots and crosses
respectively, in Fig.1).   Fig.2 illustrates this method and
Fig.3 another method in which an armco-iron standard is used
(circles in Fig.1).   Both methods are applicable in principle to all
steels with ferromagnetic carbide phases, providing that the alloying-
Card 1/2

S/126/60/010/004/004/023
E111/E452

Use of Magnetic Phase Analysis for Separate Determination of
Combined and Free Carbon

element content in the alpha-solid solution is known.   The
applicability of both extrapolation methods to the steels
represented in Fig.1 is shown in Fig.4, giving a volumetric %
cementite as a function of free carbon.   The authors have used the
technique to study graphitization of two malleable irons
(respectively 2.45, 2.45% C;   0.58, 0.50% Mn;   1.16, 1.76% Si;
0.12, 0.60% S;   0.078, 0.078% P;   no Cr).   Fig.5 gives as functions
of temperature the percent cementite and its contribution to
magnetization.   From these the free carbon was found.   The good
measure of agreement with chemical-analytical results is shown in
Table 2.   The method is much faster than chemical analysis.   There
are 5 figures, 2 tables and 6 references: 3 Soviet and 3 English.

ASSOCIATION: Gor'kovskiy issledovatel'skiy fiziko-tekhnicheskiy
             institut (Gor'Kiy Physics and Engineering Research
             Institute)

SUBMITTED: December 17, 1959

Card 2/2

KRASOTSKAYA, S.N.; APAYEV, B.A.; YAKOVLEV, B. M.

Effect of alloying elements on the kinetics of isothermal decomposition
of residual austenite. Izv. vys. ucheb. zav.; chern. met. 4
no.8:100-107 '61.   (MIRA 14:9)

1. Gor'kovskiy issledovatel'skiy fiziko-tekhnicheskiy institut.
            (Steel alloys--Thermal properties)
                (Phase rule and equilibrium)

YAKOVLEV, B.M.; ANDYARZHANOV, A.A.

Effect of chromium, molybdenum and vanadium on graphitization processes in silicon steel. Izv. vys. ucheb. zav.; chern. met. 4 no.8:112-119 '61.

(MIRA 14:9)

1. Gor'kovskiy fiziko-tekhnicheskiy institut.
(Silicon alloys--Metallography)

20214

18 7500

S/126/61/011/002/013/025
E193/E483

AUTHORS: Yakovlev, B.M. and Apayev, B.A.

TITLE: Processes Taking Place During Tempering of Nickel Steels

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol.11, No.2, pp.261-271

TEXT: The object of the present investigation was to study the effect of the variation of the nickel content on the process of tempering of hardened steels whose composition is given in Table 1. The cylindrical specimens (40 mm long, 4 mm in diameter) were heated in vacuum to 1150°C, quenched in a 10% solution of caustic soda and then cooled in liquid nitrogen.   Tempering was carried out in Wood's alloy (up to 250°C), in tin (up to 650°C) or in a vacuum furnace (at temperatures higher than 650°C).   The duration of tempering varied from 6 h at elevated temperatures to 250 h at low temperatures.   The magnetic phase analysis which was the main experimental technique was supplemented by X-ray, electronographic and carbide analyses.   In the first series of experiments, the effect of nickel on the stability of martensite during low-temperature annealing was studied.   The results are reproduced in Card 1/10

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Fig.1a where the increase $\Delta\alpha$ in the proportion of the α-phase against the tempering temperature (°C), the type of steel being indicated by each curve; in the insert (Fig.1b) the proportion of residual austenite ($a_{\oplus cm}$, %) in quenched specimens is plotted against the nickel content (%). It will be seen that with increasing Ni content, $a_{\oplus cm}$ increased. At low concentrations, nickel accelerated the decomposition of martensite whose stability increased at high Ni concentrations. In the second stage of the investigation, the general character of the process of formation of carbides during tempering of nickel steel was studied. The results showed that the transformation of the carbide phases in Ni steels takes place in the same manner as in carbon steels, i.e.

$$\text{martensite} \rightarrow \epsilon Fe_x C \rightarrow \chi Fe_x C \rightarrow Fe_3 C$$
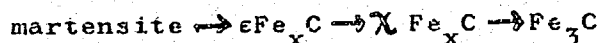
However, an increase in the Ni content of these steels has a marked effect on the stability and on the rate of the decomposition of the intermediate carbide phases. Thus, with increasing Ni content the stability of the ϵ-phase increases, reaching a maximum

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at 2% Ni, after which it decreases again.   In contrast to the
carbide-forming alloying additions, nickel increases stability of
the χ-phase at high temperatures.   This is best illustrated in
Fig.4, where the proportion (P_n%) of the χ-phase present in
steels 10H40 (10N40) (curve 1) and 10H10 (10N10) (curve 2) is
plotted against time (h) of tempering at 600°C.   The general
process of carbide formation in steel 10N40 is illustrated in Fig.5,
where the proportion (P_k, vol.%) of the ε-phase (curve 1),
χ-phase (curve 2) and cementite (curve 3), present in the steel
after 1 h tempering, is plotted against the tempering temperature
(°C), the broken portions of the curves being tentative only.   It
will be seen that the ε-phase starts to form at the very beginning
of the decomposition of martensite and that at temperatures above
200°C the proportion of this phase rapidly decreases with a
corresponding increase in the proportion of cementite and the
χ-phase.   The intermediate χ-phase is stable up to 400°C;   the
decomposition of this phase brings about an increase in the quantity
of martensite and the qualitative characteristics of this process
indicate that in the formula Fe_xC of the χ-phase, $x \leqslant 3$.   In

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fact, the results of calculations, based on the magnetometric
measurements carried out on specimens, treated to contain a
maximum proportion of the χ-phase and subsequently annealed to
attain full decomposition of this phase, showed that the χ-phase
is described by the formula Fe_2C.   In the next series of
experiments, specimens of steel 10N40, heat treated to contain the
maximum proportion of the ε-phase, were dissolved electrolytically
and the residues, constituting the ε-phase, were examined by
electron diffraction.   The results agreed with those obtained by
other workers (Ref.15 - 29) and indicated that the ε-phase with
the Curie point at 380°C has hexagonal crystal lattice.   The
results of X-ray diffraction analysis of the χ-phase, separated by
the electrolytic method, were also in agreement with those obtained
by R.H.Jack (Ref.21) and Oketani (Ref.15).   The object of the next
series of experiments was to study the solubility of nickel in
cementite.   To this end, specimens of steels 10H7, (10N7), 10N10,
10N40 and 3H40 (3N40) (0.3% C, 4.0% Ni) were tempered at 700°C for
1 to 50 h, after which they were dissolved electrolytically, the
undissolved carbide residues having been examined by chemical

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analysis and magnetometric measurements. The results of the
chemical analysis showed that the time at the tempering temperature
had practically no effect on the Ni content in the carbide residue.
The quantitative data on the composition of the residues,
reproduced in Table 5, were in agreement with those quoted in the
literature (Ref.27, 29-32).   Since, however, the residues probably
contained a proportion of undissolved α and γ phases, the increase
in the Ni content in the residues does not necessarily mean that
with increasing Ni content in the steel, the Ni content in the
cementite also increases.   According to the calculations of the
present authors, the solubility of Ni in the cementite of steels
10N7, 10N10, 10N40 and 3N40 is 0.0405, 0.0826, 0.188 and 0.243%,
respectively.   Based on the results of the present investigation,
a diagram of the temperature stability of the carbide phases in
tempered Ni steels was constructed.   The diagram, reproduced in
Fig.10, represents a vertical section of a metastable, ternary
Fe-Ni-C system at a constant carbon concentration of 1.0%,
constructed on the basis of data on the constitution of the alloys
after 1 h tempering.   There are 10 figures, 5 tables and

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S/126/61/011/002/013/025
E193/E483

33 references: 21 Soviet and 12 non-Soviet.

ASSOCIATIONS: Gor'kovskiy issledovatel'skiy fiziko-tekhnicheskiy
institut (Gor'kiy Physicotechnical Research Institute)
Gor'kovskiy politekhnicheskiy institut
(Gor'kiy Polytechnical Institute)

SUBMITTED: April 25, 1960 (initially)
September 5, 1960 (after revision)

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Table 1.

1 - Steel code mark
2 - Content of elements, %

Таблица 1

Химический состав никелевых сталей

(1) Марка стали	(2) Содержание элементов, %						
	C	Ni	Mn	Cr	Si	S	P.
10H7	1,13	0,71	0,27	0,23	0,32	0,014	0,018
10H10	1,07	1,06	0,21	0,16	0,30	0,015	0,018
10H20	1,00	1,96	0,22	0,46	Следы	0,013	0,019
10H40	1,00	3,74	0,20	0,18	0,19	0,017	0,023
10H60	1,12	6,24	0,20	0,10	0,25	0,019	0,018
10H90	1,20	9,38	0,18	0,12	0,35	0,015	0,017

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Table 5.

1 - Steel code mark
2 - Elements content, %
3 - After 1 h heating
4 - After 50 h heating
5 - Temperature of the treatment, °C.

Таблица 5

Химический состав электролитических осадков отожженных никелевых сталей

(1) Марка стали	(2) Содержание элементов, %						(5) Температура нагрева, °C
	(3) после 1 час. нагрева			(4) после 50 час. нагрева			
	Ni	Mn	Cr	Ni	Mn	Cr	
10H7	0,25	0,59	0,92	0,29	0,82	1,02	700
10H10	0,57	0,42	0,68	0,51	0,64	0,88	700
10H40	1,24	0,45	1,24	1,27	0,71	1,30	700
3H40	1,58	0,43	Нет	1,70	0,76	Нет	700
10H90	6,12	0,28	0,34	7,74	0,47	0,90	500

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Processes Taking Place ...
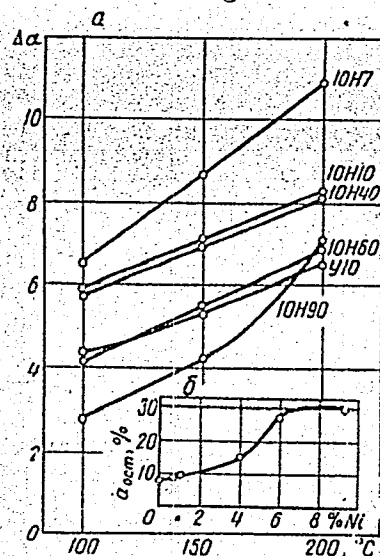
S/126/61/011/002/013/025
E193/E483

Fig.1.

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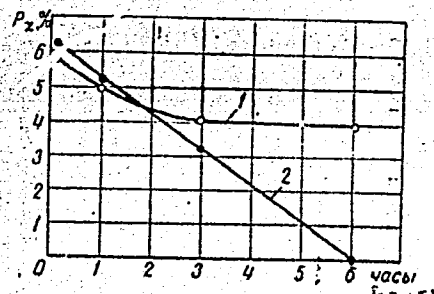
Рис. 4. Изотермы распада χ-карбида при температуре 600° для сталей 10Н40 (1) и 10Н10 (2).

Fig.4.

Processes Taking Place ...

20214
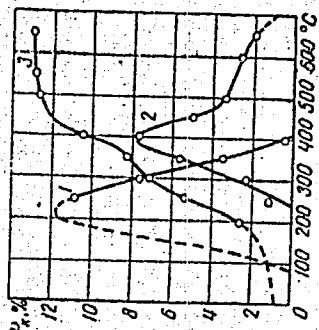
Рис. 5. Изменение объёмного процента карбидных фаз в стали 10Н40 с повышением температуры отпуска:
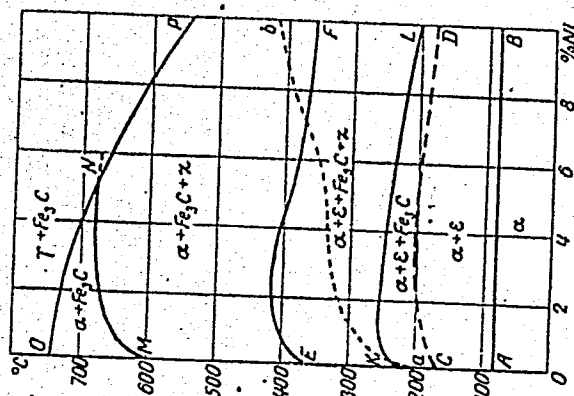
1—карбид; 2—х-карбид; 3—цементит.

Fig.5.

Fig.10.

Card 10/10

APAYEV, B.A.; YAKOVLEV, B.M.; TIKHONOV, G.F.

Effect of silicon on processes of carbide formation and
graphitization during the tempering of hardened steel. Fiz.
met. i metalloved. 12 no.2:208-216 Ag '61.   (MIRA 14:9)

1. Gor'kovskiy issledovatel'skiy fiziko-tekhnicheskiy institut
i Gor'kovskiy politekhnicheskiy institut imeni A.A. Zhdanova.
                    (Steel—Heat treatment)
                    (Silicon)

BYKOVA, T.V.; ROMANOVA, L.Ya.; RUDNEVSKIY, N.K.; KHOKHLOV, G.Ya.; YAKOVLEV, B.M.

Spectral method of determining bismuth in wrought iron. Zav.lab. 27
no.3:315 '61.   (MIRA 14:3)

1. Gor'kovskiy avtomobil'nyy zavod.
             (Bismuth--Spectra)
                (Cast iron)

L 8377-65   EWT(m)/EWA(h)   ASD(a)-5/AFWL
ACCESSION NR: AR4044031   S/0058/63/000/011/V022/V022

SOURCE: Ref. zh. Fizika, Abs. 11V153

AUTHOR: Berzin, A. K.; Meshcheryakov, R. P.; Shornikov, 3. I.; Yakovlev, B. M.

TITLE: The connection between the width of the giant resonance of the (γ, n)-reaction and filling of the energy levels of the nucleus

CITED SOURCE: Izv. Tomskogo politekhn. in-ta, v. 122, 1962, 14-18

TOPIC TAGS: isotope, threshold energy, giant resonance

TRANSLATION: Measures the threshold energies for certain isotopes of the Mo and Nd nuclei. Threshold energies in the (γ, n)-reaction for the isotopes Mo^{92}, Mo^{94}, Mo^{100}, Nd^{142}, and Nd^{150} are determined by the method of induced activity, and for the isotopes Mo^{97} and Nd^{145}—by the method of direct neutron registration. The values of the threshold energies of the other isotopes were determined while processing the general curve of the yield of photoneutrons from all isotopes of a given element. It is shown that for isotopes each containing 8 neutrons above the filled shell

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L 8377-65
ACCESSION NR: AR4044031 O

there are observed somewhat too high values of the threshold energies of the
(γ, n)-reaction. There were also studied cross sections of the (γ, n)-reactions
for isotopes of La, Ce, and Pr^{141}, Nd, Nd^{142}, and Nd^{150}. The authors note that
the insignificant difference in the widths of the giant resonances for the Nd^{150}

isotope and nuclei having a filled neutron shell indicates slight deformation of the
Nd^{150} nucleus, since strongly deformed nuclei have high values for the giant resonance
width. From this fact (together with data on the thresholds of the (γ, n)-reaction)
the authors conclude that for the Nd^{150} isotope there is no filling of the $2f_{7/2}$
level or realization of any other configuration.

SUB CODE: NP   ENCL: 00

Card 2/2

BERZIN, A.K.; YAKOVLEV, B.H.; YATIS, A.A.

Use of nuclear photoemulsions in studying the neutron
background of a 25 Mev. betatron. Izv. TPI 122:21-26 '62.

Use of type IA-2 nuclear photoemulsions in studying the
spectrum of betatron neutrons. Ibid.:27-29

(MIRA 17:9)

VLADIMIRSKIY, V.V.; KOMAR, Ye.O.; MINTS, A.L.; GOL'DIN, L.L.;
    MONOSZON, N.A.; RUBCHINSKIY, S.M.; TARASOV, Ye.K.; VASIL'YEV, A.A.;
    VODOP'YANOV, F.A.; KOSHKAREV, D.G.; KURYSHEV, V.S.; MALYSHEV, I.F.;
    STOLOV, A.M.; STREL'TSOV, N.S.; YAKOVLEV, B.M.

The 7 bev. proton synchrotron. Prib. i tekh. eksp. 7 no.4:5-9
Jl-Ag '62.   (MIRA 16:4)

1. Institut teoreticheskoy i eksperimental'noy fiziki Gosu-
darstvennogo komiteta po ispol'zovaniyu atomnoy energii SSSR,
Nauchno-issledovatel'skiy institut elektrofizicheskoy apparatury
Gosudarstvennogo komiteta po ispol'zovaniyu atomnoy energii
SSSR i Radiotekhnicheskiy institut Gosudarstvennogo komiteta
po ispol'zovaniyu atomnoy energii SSSR.
                        (Synchrotron)

YAKOVLEV, B.M.; YATIS, A.A.

Background in nuclear emulsions formed under the action of
radioactive impurites and cosmic rays. Izv. vys. ucheb. zav.;
fiz. no. 3:88-91 '64.   (MIRA 17:9)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki, elektroniki
i avtomatiki pri Tomskom politekhnicheskom institute imeni Kirova.

L 10598-65   EWT(m)   DIAAP/ASD(a)-5/ASD(p)-3/SSD(c)/AFWDC/BSD/SSD/AFWL/AEDC(a)

ACCESSION NR: AP4044680   S/0120/64/000/004/0119/0121

AUTHOR: Sanin, A. A.; Mineyev, Yu. V.; Yakovlev, B. M.

TITLE: Scheme for recording gamma-quanta of various energies in the presence of strong streams of charged particles

SOURCE: Pribory* i tekhnika eksperimenta, no. 4, 1964, 119-121

TOPIC TAGS: gamma quantum, gamma quantum recording, charged particle, charged particle motion

ABSTRACT: A well-known principle of the segregation of pulses due to gamma-quanta and to charged particles by means of a double-layer scintillation counter is used. Tunnel-diode-type threshold devices are employed for discrimination purposes; the GaAs tunnel diodes have a low operation threshold (which obviates preamplifiers) stable within 1—2% at temperatures -20+45C. Multiplier photo-tube signals are picked off (see Enclosure 1) from the anode and from the last

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L 19598-65
ACCESSION NR: AP4044660

dynode. If a charged particle passes the scintillator, the dynode signal, after the fast component has been isolated by the impulse transformer, has a high enough amplitude to operate the discriminator. The anode signal is applied, via an emitter repeater and a delay line, to a series of stepped-threshold discriminators. Each discriminator serds its impulse through an anti-coincidence device whose other input receives an impulse from the fast-component discriminator. Thus, when a charged particle passes the double-layer scintillator, a discriminator operates and no signal appears at the output of the anti-coincidence devices. With gamma-radiation, however, the discriminator does not operate. Depending on the gamma-quantum energy, one or more discriminators operate and cause signals at the output. Orig. art. has: 2 figures.

ASSOCIATION: Nauchno-issledovatel'skiy institut yadernoy fiziki MGU (Scientific-Research Institute of Nuclear Physics, Moscow State University)

SUBMITTED: 20Jul63   ENCL: 01

SUB CODE: NP   NO REF SOV: 001   OTHER: 002

Card 2/3

L 19598-65

ACCESSION NR: AP4044680

Plastic
Пластик C₅J(Tl)
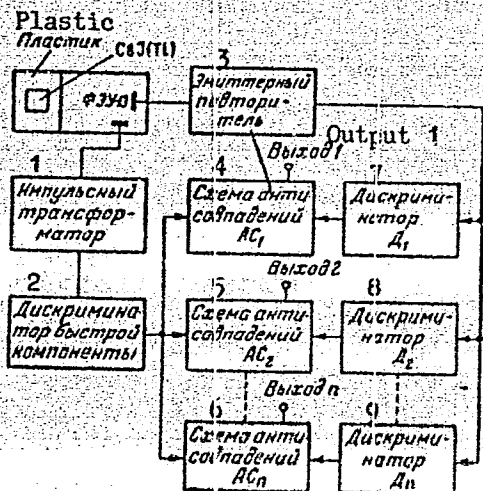
A block diagram of the gamma-quanta recorder

1 - impulse transformer
2 - fast-component discriminator
3 - emitter repeater
4 - 5 - 6 - anti-coincidence circuits
7 - 8 - 9 - discriminators

Card 3/3

APAYEV, B. A.; KRASOTSKAYA, S. N.; YAKOVLEV, B. M.

Effect of aluminum, copper, and carbon on carbide formation
processes and graphitization during the quenching of hardened
steels. Izv. vys. ucheb. zav.; chern. met. 7 no.6:130-138 '64.
(MIRA 17:7)

1. Gor'kovskiy issledovatel'skiy institut.

ACC NR: AP7000519   SOURCE CODE: UR/0048/66/030/011/1763/1764

AUTHOR: Volodichev, N. N.; Grigorov, N. L.; Nesterov, V. Ye.;
Rapoport, I. D.; Savenko, I. A.; Yakovlev, B. M.

ORG: none

TITLE: A study made using the Proton-1 satellite of the chemical com-
position of primary cosmic rays in the moderate energy region [Paper presented
at the All-Union Conference on Physics of Cosmic Rays held in Moscow from 15 to 30 November 1965]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 11,
1966, 1763-1764

TOPIC TAGS: primary cosmic ray, cosmic ray measurement, cosmic ray
intensity, solar flare, spectrometer, Cerenkov counter, photomultiplier, scintil-
lation counter, meteorologic satellite, cosmic ray telescope

ABSTRACT: A study, made using the Proton-1 satellite of the flux and
chemical composition of solar cosmic rays generated during chromospheric
flares, and of primary galactic cosmic radiation is described. A
nuclear charge spectrometer with a geometric factor of 133 ± 6 cm$^2 \times$sterad
was used in the study. The spectrometer consisted of a Cherenkov
counter placed between two scintillation counters which form a tele-
scope. The Cherenkov counter consisted of an FEU-49 photomultiplier
which made an optical contact with a Plexiglas disk 165 mm in diameter
and 30 mm thick. The side of the disk opposite the photocathode was

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ACC NR: AP7000519
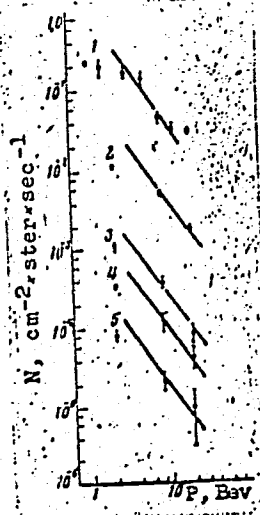
Card . 2/3

Fig. 1. Cosmic ray flux vs. hardness in
the geomagnetic equator region

1 - Protons; 2 - α-particles; 3, 4, 5 -
nuclei in the M, H, and VH groups.

ACC NR: A7000519

coated with black paint to prevent registration of upward moving par-
ticles. The scintillation counters consisted of FEU-13 photomulti-
pliers and plastic scintillator plates 15 mm thick. Graphs of cosmic
ray flux vs. hardness (see Fig. 1) were constructed from the prelim-
inary data on the longitudinal effect and azimuthal asymmetry of cosmic
ray intensity in the geomagnetic equator region for protons, α-par-
ticles, and nucleii in the M, H, and VH groups with energies of 1 Bev
for protons and in the range of 2 to 19 Bev for the remaining groups.
Orig. art. has: 2 figures.
                                                              [WA-75]
                                                              [IV]

SUB CODE: 04, 1870/   SUBM DATE: none/   ORIG REF: 002/
OTH REF: 001

Card 3/3

ACC NR.   AP7000523   SOURCE CODE: UR/0048/66/030/011/1773/1775

AUTHOR: Grigorov, N. L.; Klintsov, Yu. S.; Nesterov, V. Ye.; Rapoport, I. D.; Savenko, I. A.; Yakovlev B. M.

ORG: none

TITLE: Study of high-energy electrons using the Proton-1 and Proton-2 artificial Earth satellites /Paper presented at the All-Union Meeting on Physics of Cosmic Radiation held in Moscow from 15-20 November 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 11, 1966, 1773-1775

TOPIC TAGS: satellite data analysis, proton counter, electron distribution, electron flux, primary cosmic ray

ABSTRACT: The instrumentation of the Proton-1 and Proton-2 satellites included an SEZ-12 electron spectrometer which could register primary · cosmic radiation consisting of electrons with $E_e \geq 0.3$ Bev. The following components were used for this purpose: 1) two scintillation counters with a differential amplitude analyzer which registered single particles with a charge $Z = 1$ moving at a relativistic velocity; 2) a gas Cherenkov counter (using Freon-13 at 11 atm) which registered particles whose energies exceeded 7 m_0c2 (effective threshold for protons is 10 Bev) moving unidirectionally between two scintillation counters;

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ACC NR: AP7000523

3) a scintillation electron energy detector which is a simplified version of an ionization calorimeter. The scintillators were placed between four 1.5 cm-thick lead plates. The pulses from the energy detector were applied to an amplitude discriminator which had 6 threshold levels. Another scintillation counter enveloped by a 12 cm-thick lead shield determined the penetration capability of particles. 4) A scintillation avalanche detector served to isolate those avalanches which were generated by primary protons but whose effect was similar to avalanches generated by electrons. Thus, the cosmic ray electrons were measured accurately even if they numbered only 0.2—0.3% of the proton total. After processing the obtained electron count data, an unexpected result became apparent for electrons with $E_e \geq 0.3$ Bev. The intensity of electrons with $E_e \geq 0.3$ Bev and protons recorded by the SEZ-12 equipment is shown in Fig. 1 as a function of latitude. Even on the equator where particles with energies less than 7 Bev/sec should not be found because of the Earth's magnetic field, 0.3-Bev/sec electrons were recorded. These, consequently, cannot be primary electrons; they are electrons which have been trapped and retained by the Earth's magnetic field. The SEZ-1 apparatus in the Proton-1 registered particles with charge $Z = 1$ and $Z = 2$ in the equatorial regions where their intensity was 1.2 (for $Z = 1$) and 2.1 (for $Z = 2$) times more predominant in the West than in the East. If it is assumed that the primary protons possess the same asymmetry, the SEZ-1 equipment recorded a flux

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ACC NR: AP7000523

of 2.6 x 10⁻² secondary particles/cm²·sec·sterad. Thus the existance
of an electron flux ($E_e \geq 0.3$ Bev) of 2.2 x 10⁻²·el/cm²·sec·sterad is
corraborated by the SEZ-1-gathered data. Orig. art. has: 1 figure.
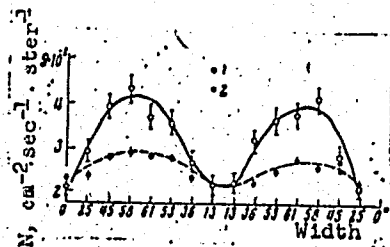
[WA-75]
[BD]

Fig. 1. Intensity of 1) electrons and 2) protons as a
function of latitude. [Proton intensity is normalized
with respect to the intensity of electrons on the
equator].

SUB CODE: 03/   SUBM DATE: none/   ORIG REF: 005/   OTH REF: 002

Card. 3/3

L 5,715-65   EEC-4/EWG(v)/EWA(h)/EWT(l)/EWP(t)/EEC(m)/FCC   Pc-5/Pi-4/Po-4/Pq-4/
Pa -2/Peb   IJP(c)   GW

ACCESSION NR: AP5014116

UR/0203/65/005/003/0546/0549
550.388.2

AUTHOR: Savenko, I. A.; Savun, O. I.; Shavrin, P. I.; Yakovlev, B. M.

TITLE: Combined proton spectrometer for space research

SOURCE: Geomagnetizm i aeronomiya, v. 5, no. 3, 1965, 546-549

TOPIC TAGS: spectrometer, proton spectrometer, telescope spectrometer, combination
spectrometer

ABSTRACT: A description is given of a four-channel telescope spectrometer designed
for measuring the energy spectra of protons in the 3—100 Mev range in the presence
of intense electron flux. A cylindrical silicon detector, 17 mm in diameter and
2.0 mm thick, is used as the dE/dx detector, where E is energy level. It has a
sensitive layer of 1.6 mm and is mounted in front of a CsI crystal which serves as
the E detector. The preamplifier and amplifier of the silicon detector are placed
directly beside it. A detector bias of about 20 v is provided by a separate battery.
The silicon detector senses particles whose dE/dx exceeds that of electrons (protons,
deuterons, α-particles, etc.) and confines proton energy measurements to the
3—100 Mev range. The cylindrical CsI crystal is 15 mm in diameter and 30 mm in

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L 53715-65

ACCESSION NR: AF5014116   0

height, and is covered on three sides by a plastic anticoincidence cap. The crystal,
the cap, and the photomultiplier are shielded from electrons having energies up to
8 Mev, and the crystal is protected from light by an aluminum foil 10 μ thick.
Fig. 1 of the Enclosure shows a block diagram of the spectrometer. Negative pulses
from the FEU-16 photomultiplier are transmitted to the emitter follower (input re-
sistance, about 200 Kohm; input capacitence, 5—8 pf). The maximum signal trans-
mitted without distortion is about 5 v. With an emitter resistance of 68 ohm, the
output pulses transmitted to the three-channel analyzer, consisting of three inte-
gral discriminators, are set to threshold levels between 0.1 and 4 v. At the discrim-
inator output, the negative pulses have a duration of 1.0 μsec and a rise time of
0.05 μsec. The pulses are transmitted from the photomultiplier to a circuit of
rapid component separation which uses two pulse transformers. The pulses trans-
mitted from the separation circuit are shaped by an integral discriminator circuit
and then inverted. A delay line with t = 0.25 μsec is required because the separa-
tion circuit shapes pulses with a delay of about 0.25 μsec. The amplified signals
from the silicon detector are transmitted to the shaper, which is a monostable multi-
vibrator with a threshold of 50—100 Mv. The pulses from the detector, the three .
integral discriminators, and the separation circuit are transmitted to double coin-
cidence and anticoincidence circuits. The double coincidence and anticoincidence
circuits no. I, II, III, and anticoincidence no. IV, correspond to the registration

Card 2/4

L 53715-65
ACCESSION NR: AP5014116   /

of protons in the 20—100, 40—100, 60—100, and 3—20-Mev energy ranges. The
resolution time of the coincidence circuits is about 1 μsec, ensuring a count rate of
1.2×10^5 pps, or registration of 10^6 proton/cm^2 sec. Tests at +50 to –20° have
demonstrated that threshold fluctuation does not exceed $\pm 10\%$. The dimensions of
the electronic circuit are 38 x 30 x 10 mm. The entire electronic circuit, in-
cluding the high-voltage transformer for the photomultiplier, does not consume more
than 0.3 w. Orig. art. has: 3 figures.   [W]

ASSOCIATION: Moskovskiy gosudarstvennyy universitet, Institut yadernoy fiziki
(Moscow State University, Institute of Nuclear Physics)

SUBMITTED: 03Jun64   ENCL: 01   SUB CODE: SV, OP

NO REF SOV: 004   OTHER: 003   ATD PRESS: 4020

Card 3/4

YAKOVLEV, B.M.

USSR/Human and Animal Physiology. The Effects of Physical   T
            Efforts.

Abs Jour: Ref Zhur-Biol., No 20, 1958, 93747.

Author : Garganeyev, G.P., Meskalev, V.A., Yakovlev, B.M.
Inst   : Tomsk Polytechnical Institute
Title   : Laboratory Organization and Shielding of Personnel in
            Betatron Work.

Orig Pub: Izv. Tomskoge politekhn. in-ta, 1957, 87, 13-16.

Abstract: No abstract.

Card   : 1/1

21,2300

68134

AUTHORS: Shipunov, I. V., Chief Engineer and Yakovlev, B.M., SOV/144-59-2-16/19
          Junior Scientific Worker

TITLE: Problems Encountered in the Cooling of a Betatron Magnet

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika,
            1959, Nr 2, pp 121-123 (USSR

ABSTRACT: The use of betatrons in industry, medicine and research
          institutions means that they have to run for long periods
          of time. The heating of the electromagnet must not,
          however, exceed certain recommended limits and, therefore,
          the problem of the cooling of the electromagnet becomes
          important. The $\sqcup$-shaped magnetic circuit is the most
          widely used. The magnetic flux in such cores is
          distributed very nonuniformly. In order to estimate the
          effect of heating it is necessary to determine points of
          maximum temperature. Analytically this is very difficult.
          The present paper reports results of experiments on the
          determination of the temperature distribution in $\sqcup$-shaped
          cores. The central inserts and pole pieces are the most
          strongly heated parts of the magnetic circuit. The
          temperature distribution was determined using resistance
Card1/2   thermometers and the temperature was measured at 30 to

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SOV/144-59-2-16/19

Problems Encountered in the Cooling of a Betatron Magnet

40 points simultaneously. The temperature distribution was obtained with and without forced ventilation. The loss of heat by the magnet yoke was determined from the empirical formula

$$\alpha_v = \alpha\ (1 + 0.075v)\ W/cm^2 \cdot \,^\circ C,$$

where α is the heat loss in quiescent air from the surface of the yoke and v is the air speed in the space between the poles in m/sec. In order to increase the cooling surface, copper cooling fins were used. These cooling fins pass right into the core of the electromagnet. Special empirical formulae which describe the heat loss in such a system have been obtained and are now given.
There are 2 tables.

ASSOCIATION: Fiziko-tekhnicheskiy fakul'tet,Tomskiy politekhni-
cheskiy institut (Physics-Engineering Faculty, Tomsk
Polytechnical Institute)

Card 2/2

BERZIN, A.E.; MESHCHERYAKOV, R.P.; YAKOVLEV, B.M.

Space distribution of radiation from a betatron. Izv. vys. ucheb.
zav.; fiz. no.4:130-134 '59.   (MIRA 13:3)

1.Tomskiy politekhnicheskiy institut imeni S.M. Kirova.
            (Betatron) (Bremsstrahlung)

S/139/59/000/05/023/026
E032/E114

AUTHORS: Berzin, A.K., Meshcheryakov, R.P., and Yakovlev, B.M.

TITLE: Threshold Energies for the (γ, n) Reactions for Elements including Isotopes with 50 and 82 Neutrons

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1959, Nr 5, pp 148-153 (USSR)
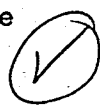
ABSTRACT: The present work is a continuation of the work reported in Refs 1 and 2 by the first of the present authors. Threshold energies have been measured for 26 isotopes. Of these, 15 thresholds for photoneutrons have been measured for the first time and 8 have been measured with increased accuracy. The experimental error present in 4 of the thresholds measured in Ref 2 has been removed. A 25 MeV betatron was used as the source of the gamma radiation, and in the majority of cases the neutrons were detected as in Refs 1 and 2, using two scintillation counters in coincidence. The results obtained are summarised in Table 1 (p 152) in which the first column gives the name of the isotope, the fourth column gives the threshold measured in the present work (in MeV), the fifth column gives the threshold as measured by other

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S/139/59/000/05/023/026
E032/E114

Threshold Energies for the (γ, n) Reactions for Elements
including Isotopes with 50 and 82 Neutrons

workers, and the last column gives the references. The results are also shown in the form of graphs in Figs 2 and 3 (these include results of other workers). Fig 2 shows that the thresholds for even-even isotopes containing 50 neutrons lie on a single straight line (except for Zr^{90} which has two thresholds because of the presence of a metastable state). A similar situation is observed in the case of isotopes with 82 neutrons (Fig 3). Here the exception is the isotope Sm^{144}. In the case of the isotope Xe^{136} the threshold was measured with the aid of the apparatus shown schematically in Fig 1. The irradiated gas was in a metallic envelope A which was connected to the recording part of the apparatus B by means of a needle valve a. The recording of conversion electrons with energies of about 0.5 MeV which are formed as a result of the formation of a metastable state of Xe was carried out with the aid of a sodium iodide crystal.

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S/139/59/000/05/023/026
E032/E114

Threshold Energies for the (γ, n) Reactions for Elements
including Isotopes with 50 and 82 Neutrons

There are 3 figures and 14 references, of which 9 are
English and 5 Soviet.   There is also 1 table.

ASSOCIATION: Tomskiy politekhnicheskiy institut imeni
S.M. Kirova
(Tomsk Polytechnical Institute imeni S.M. Kirov)

SUBMITTED: December 27, 1958

Card 3/3

45421
S/058/63/000/001/030/120
A062/A101

AUTHORS: Yakovlev, B. M., Meshcheryakov, R. P., Gryaznov, A. L.

TITLE: On the distribution of thermal neutrons emerging from a betatron

PERIODICAL: Referativnyy zhurnal, Fizika, no. 1, 1963, 65, abstract 1A564
             (In collection: "Elektron. uskoriteli". Tomsk, Tomskiy un-t,
             1961, 178 - 183)

TEXT: The thermal neutron background was investigated in the betatron
laboratory of the Tomsk Polytechnic Institute (near the 25-MeV betatron and in
the neighboring premises). It is shown that the maximum value of the thermal
neutron flux in the main γ-ray beam is equal to $7 \cdot 10^3$ neutron/cm^2 per 1 roentgen
of γ-bremsstrahlung. The magnitude of the neutron flux in the experimental room
strongly depends on the design of the protective shields and the collimator, be-
ing in the worst case equal to $2 \cdot 10^3$ neutron/cm^2 per 1 roentgen of bremsstrah-
lung. It is pointed out that shielding against the bremsstrahlung from accelera-
tors does not yet ensure a complete shielding against the neutrons. The measure-
ments of the thermal neutrons were carried out by different methods (with the

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On the distribution of thermal neutrons...

S/058/63/000/001/030/120
A062/A101

standard type "Efir-1" radiometer, as well as by measuring the induced activity'
in In^{116} and Mn^{56}).

V. Kanunnikov

[Abstracter's note: Complete translation]

Card 2/2

S/058/63/000/001/027/120
A062/A101

AUTHORS: Meshcheryakov, R. P., Yakovlev, B. M.

TITLE: Device for determining the center of a γ-ray beam

PERIODICAL: Referativnyy zhurnal, Fizika, no. 1, 1963, 44, abstract 1A419
              (In collection: "Elektron. uskoriteli". Tomsk. Tomskiy un-t,
              1961, 284 - 287)

TEXT: To determine the position of the beam center of the 25 - 30 MeV
γ-bremsstrahlung in betatrons, it is proposed to measure the induced activity
in a radiator made of aluminum or lead. This measurement is carried out, while
the betatron is in operation, with the aid of 4 counters arranged in two pairs
opposite to one another, using for this purpose only the 3/4 of the magnetic
field variation period, when no electron acceleration takes place. The pulses
from the counters are fed to two comparison circuits utilizing in their output
pointer microammeters. A drawback of the device resides in the strong effect of
the background induced in the counters and its shield.

[Abstracter's note: Complete translation]   V. Kanunnikov

Card 1/1

PHASE I BOOK EXPLOITATION .   SOV/5511

Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti.
   Kiyevskoye oblastnoye pravleniye.

Metallovedeniye i termicheskaya obrabotka (Physical Metallurgy and Heat
   Treatment of Metals) Moscow, Mashgiz, 1961. 336 p. Errata slip
   inserted. 5,000 copies printed.

Sponsoring Agency: Gosudarstvennyy nauchno-tekhnicheskiy komitet
   Soveta Ministrov UkrSSR. Nauchno-tekhnicheskoye obshchestvo
   mashinostroitel'noy promyshlennosti. Kiyevskoye oblastnoye
   pravleniye.

Editorial Board: M. P. Braun, Doctor of Technical Sciences, I. Ya.
   Dekhtyar, Doctor of Technical Sciences, D. A. Draygor, Doctor of
   Technical Sciences, I. S. Kamenichnyye, Engineer, Ye. A. Markov-
   skiy, Candidate of Technical Sciences, V. G. Permyakov, Doctor
   of Technical Sciences, and A. V. Chernovol, Candidate of Tech-
   nical Sciences; Ed.: M. S. Soroka; Tech. Ed.: M. S.
   Gornostaypol'skaya; Chief Ed., Mashgiz (Southern Dept.): V. K.
   Serdyuk, Engineer.

Card 1/10

Physical Metallurgy. (Cont.)   SOV/5511

PURPOSE: This collection of articles is intended for scientific
   workers and technical personnel of research institutes, plants,
   and schools of higher technical education.

COVERAGE: The collection contains papers presented at a convention
   held in Kiyev on problems of physical metallurgy and methods of
   the heat treatment of metals applied in the machine industry.
   Phase transformations in metals and alloys are discussed, and
   results of investigations conducted to ascertain the effect of
   heat treatment on the quality of metal are analyzed. The pos-
   sibility of obtaining metals with given mechanical properties
   is discussed, as are problems of steel brittleness. The col-
   lection includes papers dealing with kinetics of transformation,
   heat treatment, and properties of cast iron. No personalities
   are mentioned. Articles are accompanied by references, mostly
   Soviet.

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Physical Metallurgy. (Cont.)   SOV/5511

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Physical Metallurgy (Cont.)   SOV/5511

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Physical Metallurgy, (Cont.)   SOV/5511

Card 7/10

Physical Metallurgy.(Cont.)   SOV/5511

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AVAILABLE: Library of Congress

VK/wrc/os
8/26/61

Card 10/10

YAKOVLEV, B.M.

3PU0

24 6730

AUTHORS: Vladimirskiy, V. V., Komar, Ye. G., Mints, A. L.,
Gol'din, L. L., Monoszon, N. A., Rubchinskiy, S. M.;
Tarasov, Ye. K., Vasil'yev, A. A., Vodop'yanov, F. A.,
Koshkarev, D. G., Kuryshev, V. S., Malyshev, I. F., Stolov,
A. M., Strel'tsov, N. S., Yakovlev, B. M.

TITLE: The design of the 7-Bev proton synchrotron

PERIODICAL: Atomnaya energiya, v. 12, no. 6, 1962, 472-474

TEXT: The history of the first Soviet cyclic accelerator with rigid
focusing is briefly described, and the most important data on its planning
and operation are presented. Planning was started in 1953. The parameters
of this proton accelerator, the energy of which exceeds the antinucleon
production threshold, were so chosen that the dependence of the orbital
circumference on the particle momenta was completely compensated. This was
achieved by employing 14 quadrupole magnets with orbits of negative
curvature. Technical data: output current, 10^{10} protons/pulse; maximum
field strength, 8475 oe; length of equilibrium orbit, 251.2 m; radius of

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The design of the 7-Bev ...   S/089/62/012/006/003/019
                                                 B102/B104

curvature of the trajectories in the bending magnets (C), 31 m, and in the
compensation magnets (X), ∞; number of magnetic sectors, 96C + 14X; gap
length between the C-magnets, 304.0 mm; gap length around the X-magnets,
417.5 mm; index of the decrease in field strength, 460; internal height
and width of the chamber, 80 and 110 mm, respectively; number of betatron
oscillations per revolution, 12.75, and per periodic element, 0.91;
number of magnets per periodic element, 8; total critical energy, 19.2 Bev;
maximum deviation of the periodic orbit with 100% deviation of the
momentum from the equilibrium momentum, 1.47 m; rate of energy increase
per revolution, 4.3 kev; duration of one cycle, 1.55 sec; 10-12 cycles/min;
particle revolution frequency at the beginning of the cycle, 0.11 Mc/sec,
and at the end, 1.19 Mc/sec; frequency of synchrocyclotron oscillations,
3600 and 130 cps; weight of the electromagnet steel, 2500 tons; maximum
power of the supply system, 25 Mw; Van de Graaff injector (particle energy,
3.8 Mev; field strength 90 oe); admissible deviations from field strength
and field gradients, ~10⁻³; deviations at the chamber edge due to
nonlinearities, ~10⁻²; admissible frequency deviation of the accelerating
field at the beginning of the cycle, 10⁻³, and at the end, 5·10⁻⁵. There
are 1 figure and 1 table.
SUBMITTED: March 12, 1962
Card 2/2

ACCESSION NR: AR4022438   S/0058/64/000/001/A037/A037

SOURCE: RZh. Fizika, Abs. 1A333

AUTHORS: Berzin, A. K.; Yakovlev, B. M.; Yatis, A. Q.

TITLE: Investigation of the neutron background of a 25-MeV beta-
tron with the aid of nuclear emulsions

CITED SOURCE: Izv. Tomskogo politekhn. in-ta, v. 122, 1962, 21-26

TOPIC TAGS: betatron, betatron neutron background, nuclear emulsion
technique, optimal Gamma ray dose, Gamma ray intensity, neutron flux,
Gamma bremsstrahlung

TRANSLATION: Results are presented of measurements of the neutron
background in the betatron laboratory of the Tomsk Polytechnic In-
stitute with the aid of nuclear emulsions. Knowledge of the neutron
background is essential in the study of photonuclear reactions, and

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ACCESSION NR: AR4022438

also when betatrons are used in medicine and biology. The measure-
ment procedure is described in detail. Photographic plates with
emulsions 100 and 200 microns thick were used. The optimal gamma-
ray dose was 4--6 roentgens. To avoid errors due to the paper cover
of the plates, the latter were irradiated without paper in a dark
room. The constancy of the intensity of the gamma radiation was
monitored with the aid of two ionization chambers. The neutron flux
was measured at 12 points. Its maximum value was 6.38×10^4 neu-
tron/cm^2 per roentgen of gamma bremsstrahlung. V. Voronin.

DATE ACQ: 03Mar64   SUB CODE: PH   ENCL: 00

Card   2/2

YAKOVLEV, B.M.; YATIS, A.A.

Use of a slide rule in determining the energy of neutrons from the
paths of recoil protons in a nuclear photoemulsion. Izv.vys.ucheb.
zav.; fiz. no.3:127-130 '63.   (MIRA 16:12)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki, elektroniki
i avtomatiki pri Tomskom politekhnicheskom institute imeni Kirova.

YAKOVLEV, B.M.; YATIS, A.A.

Studying the background and energy spectrum of neutrons from a
betatron with the aid of nuclear emulsions. Izv. vys. ucheb. zav.;
fiz. no.4:3-9 '63.   (MIRA 16:9)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki, elektroniki
i avtomatiki pri Tomskom politekhnicheskom institute imeni S.M.
Kirova.
          (Betatron) (Neutrons) (Photography, Particle track)

ACCESSION NR: AP4041850   S/0139/64/000/003/0088/0091

AUTHORS: Yakovlev, B. M.; Yatis, A. A.

TITLE: On the size of the background in nuclear emulsions, produced under the influence of radioactive impurities and cosmic rays

SOURCE: IVUZ. Fizika, no. 3, 1964, 88-91

TOPIC TAGS: nuclear emulsion, particle trajectory, photographic processing, radioactive material, cosmic ray

ABSTRACT: In view of the importance of the background when nuclear emulsions are used with weak radioactive sources or with nuclear reactions of small cross sections or of low energies, the authors estimated the background in Soviet nuclear emulsions type NIKFI Ya-2, T-3, T-1, and A-2, with emulsion thickness 100 and 200 microns. Emulsions of various ages were tested. Particle tracks and stars with from two to five prongs were studied and processed. To prevent

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ACCESSION NR: AP4041850

regression of the tracks and stars in the emulsions, the latter
were stored at 0°C. All emulsions were processed under identical
conditions. The sources of the tracks and stars were shown to be
impurities in the gelatin and cosmic rays. If a glass substrate
was used, additional sources might have been radioactive impurities
in the glass. Data were obtained on the distribution of the number
of tracks as functions of the length, and on the variation of the
number of events with the "lifetime" of the emulsion. Comparison
with Ilford emulsions indicates that the contamination of the glass
substrates is about the same in Ilford and in Soviet emulsions.
Methods of reducing the background are discussed. Orig. art. has:
3 figures and 1 table.

ASSOCIATION: Nauchno-issledovatel'skiy institut yadernoy fiziki,
elektroniki i avtomatiki pri Tomskom politekhnicheskom institute
imeni S. M. Kirova (Scientific-Research Institute of Nuclear Physics,
Electronics, and Automation at the Tomsk Polytechnic Institute)

Card   2/3

ACCESSION NR: AP4041850

SUBMITTED: 23May63   ENCL: 00

SUB CODE: NP   NR REF SOV: 002   OTHER: 001

Card   3/3

CHAKHMAKHCHEV, V.A.; YAKOVLEV, B.M.

Origin of Paleocene oil pools in the Kuban-Azov Lowland.
Neftegaz. geol. i geofiz. no. 10:12-15 '65.   (MIRA 18:12)

1. Institut geologii i razrabotki goryuchikh iskopayemykh,
Moskva.

L 43088-65   EWT(m) / EPA(w)-2/EWA(m)-2   Pab-10/Pt-7   IJP(c)   JT/GS

ACCESSION NR: AT5007918   S/0000/64/000/000/0197/0201

AUTHOR: Vladimirskiy, V. V.; Gol'din, L. L.; Koshkarev, D. G.; Tarasov, Ye. K.;
Yakovlev, B. M.; Gustov, G. K.; Komar, Ye. G.; Kulikov, V. V.; Malyshev, I. F.;
Monoszon, N. A.; Puikovich, A. V.; Stolov, A. M.; Strel'tsov, N. S.; Titov, V. A.;

TITLE:

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963. Trudy.
Moscow, Atomizdat, 1964, 197-201

TOPIC TAGS: high energy accelerator, synchrotron

ABSTRACT: A 50-70 Gev proton synchrotron with strong focusing is being constructed
not far from Serpukhov, as has been reported earlier (e.g. "Research Institute for
the Design of Equipment, Leningrad," in Proceedings of the International Conference
on High Energy Accelerators and Instrumentation, CERN, 1959). The
present report describes parameter choice and improvements in previous plans. The
characteristics of the accelerator and the present state of construction in
1963. The parameters of the magnet are presented in a table. A small change in
the original plans permitted an increase in the length of a part of the free-
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ACCESSION NR: AT5007918

sections, some of which are utilized for input and exit of beams. The super-period design is described. The lengthened sections were obtained as a consequence of shortening the low-tension sections which with one. The f---/a protection of the magnetic channel were diminished consequently, but very little, and the limiting energy was lowered by 2-3 Gev. The construction of the magnet is described. Each of the magnetic blocks is divided lengthwise into 5 sub-blocks which are enveloped by the common winding. These sub-blocks consist of laminar th---millimeter silicon steel. These steel sheets were stamped out without subsequent mechanical working, and were subjected to sorting and interlocking in order to diminish the magnet deformations. The sub-blocks are constricted by lateral welded plates without adhesion. Provision was made for windings on the poles in order to correct for the nonlinearity and for variation in the drop reading. These windings make it possible to introduce a artificial quadratic square, nonlinearity of in changing the dependence of the frequency of transverse oscillations during a period. In order to correct for straying of the residual field, provision has been made for windings on the yoke in series with the main winding. The sub-blocks must undergo calibration on a magnet stand in order to make correcting systems more precise and to determine the most convenient disposition of the sub-blocks along the ring. The winding of the electromagnet is made of aluminum busbars with hollow cores for cooling water. The length of the busbar is so selected that there would be no

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L 43088-65

ACCESSION NR: AT5007918

welded joints inside the coils. The winding consists of 4 sections, two of which
are displayed on the upper pole and two on the lower. The most important   charac-
teristics of the electromagnet and power supply system are described in a table. Also
described are the vacuum chamber and accelerating field (obtained by 53 paired
resonators with lumped rings, which operate at the 30th harmonic of revolution
frequency ...

... of the ring ... from the injector to the experi-
mental room have been completed in the main and are ready for installation of
equipment. This room, in the form of a single-aisle building without internal
supports, permits one to work on beams brought into the inner and outer sides. A
90-meter arch covers this room, whose overall length is 150 meters. Provisions
have been made for a second experimental room at the southwest part of the ring.
Orig. has 4 figures, 2 tables.

ASSOCIATION: Institute teoreticheskoy i eksperimental'noy fiziki GKAE SSSR
(Institute of Theoretical and Experimental Physics, GKAE SSSR). (2) Nauchno-
issledovatel'skiy institut elektrofizicheskoy apparatury imeni D. V. Yefremova
GKAE SSSR ...

Card 3/4